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MINERALOGY

Will American Girls Wear American Diamonds?

By Marjorie MacDill

If Miss America ever takes it into her boyish-bobbed head to demand a simon pure, home-raised product in her engagement ring, how are we fixed to meet such a desire? For are not the requests of royalty, commands? Though the South African source of the world's diamond supply is still going strong, we, as a nation, sport more than half of the sparkling carbon crystals worn anywhere. The question is which will last out the longer, the diamond pipes of Kimberley or the dollar lining of prosperous American pockets that can afford more diamonds than any other nation.

Though little systematized search has been made, the complete total of diamonds found in widely scattered parts of the United States, if it could be absolutely checked up, would amaze the public that has long associated the queen of gems with the far places of the earth like Africa, Brazil and India. California, the Piedmont region of the Atlantic seaboard and the region around the Great Lakes have all contributed some, but Arkansas is the only place in North America where diamonds are really mined.

Experts put the total Arkansas output at over ten thousand stones since diamonds were first found in Murphreesboro in Pike County in 1906. Most of them are being held by mining companies, but a few have been sold and the best and most complete collection of them out of the hands of the mine owners is in the U. S. National Museum. The finest of this lot have just come to the Smithsonian Institution along with the quarts of quartz, pounds of topaz, and ounces of opal, contained in the famous collection of precious stones of the late Colonel Washington A. Roebling. The largest native diamond in the museum, according to Dr. W. F. Foshag, who is working on the collection, weighs slightly under 18 carats and is one of the prize Arkansas specimens. The best of them all, however, came to light in 1924, tipping the jeweler's scales at 40.23 carats, and is the largest diamond ever found on this continent.

The diamond deposits of the world are of two types. Those in Brazil, India and Australia, and some of those in Africa, are placers where the stones have been concentrated by wind and water. The occurrence of isolated diamonds in gold placers in this country is accounted for by the fact that the gold nuggets and diamond crystals are heavier than the other particles of sediment and gravel washed down from higher levels and are consequently fairly commonly deposited in the same locality. The second type of diamond deposit is in solid rock of volcanic origin or in the soft earth or clay overlying it. Like this is the Arkansas diamond region, as well as the world famous mines of South Africa.

When miners speak of a diamond pipe they refer to the vent of a prehistoric volcano which has filled up with diamond bearing rock. Geologists call this rock peridotite, and it is the only rock known to be the source of paying quantities of diamonds. Sometimes after it has rotted down or decomposed as the result of erosion and weathering, it takes on different characteristic colors, known among the miners as blue, black, yellow or green

(*Just turn the page*)

HOW WOULD YOU like to have this sure enough "Made in U. S. A.", diamond in your engagement ring? It is one of the largest found in this country.

INDEX TO THIS ISSUE

Alcohol and Rats 133
American Medican Association 133
Apperly, F. A. 135
Arkansas, Diamonds in 125
Art, Indians Had Mysterious 137
Bacteria Carry Own Enemies 137
Bacteriophage 137
Bell, Alexander Graham 139
Bentley, Madison 127
Birds, Migratory 139
Cactus, Story of 127
Capital Punishment 135
Cargoes and Harvests 137
Cartersville, Georgia 137
Code, World Figure 129
Corn Borer, War on 131
Corpuscle, Revolution of the 137
Death Penalty 135
D'Herelle 137
Diamonds, American 125
Dutton, L. O. 137
Dyspepsia, Salt for 135
Eddington, A. S. 137
Etowah Mounds 137
Eye for an Eye? 135
Foshag, W. F. 125, 129
Franklin, Sir John 139
Gardner, Henry A. 139
Gibson, Manly B. 129
Giza 127
Golf Greens, Bug-Proof 133
Hanson, Frank B. 133
Heinroth, Hans 129
Heys, Florence 133
Indian Mysterious Art 137
Internal Constitution of Stars 137
International Language 129
Lawes, Lewis E. 135
Lead arsenate 133
MacQuarrie, T. W. 133
Manual of Cultivated Plants and Shrubs 137
Marston, H. R. 131
Maya Calendar, Origin of 131
Mechanical Skill, Tests 139
Meller, H. B. 139
Menu, American 137
Milk Relationship 131
Moorehead, Warren K. 137
Natural History of Our Conduct 137
Nature Ramblings 135
Nelson, Thomas 133
Nuttal, Zelia 131
Odors, Artist in 127
Optical and General Scientific Instruments, Catalog of 137
Optical Convention, Proceedings of 137
Peattie, Donald Culross 137
Porcupine 135
Power, Frederick Belding 127
Rats, Booze and 133
Rehder, Alfred 137
Ritter, William E. 137
Roebling collection 129
Rose, J. N. 127
Salt for Dyspepsia 135
Sing Sing Prison 135
Smoke Dangers Manifold 139
Sommerfeld, Arnold 137
Spahlinger, Henri 133
Streptococci 137
Suicides, Student 127
Telephone, Invention of 139
Tests Mechanical Skill 133
Three Lectures on Atomic Physics 137
Tomb Robbers 127
Toothaches, Experimental 129
Tuberculosis Cure Fails 133
Tung Oil in Florida 139
Volta, Alexander 139

CLASS STUDY HELPS

Articles on following pages will be found especially useful in science class work:

General Science 125, 126, 139
Biology 126, 131, 133, 135
Chemistry 125, 127, 139
Hygiene 129, 131, 133, 135
Physics 131, 137, 139

Science News-Letter, Feb. 26, 1927

American Diamonds

(*Cntinued from page* 125)

ground. In the Kimberley mines the perpendicular column of blue ground has been explored down beyond three thousand feet and goes on down nobody knows how much farther. In Arkansas the surface is barely scratched yet. There the peridotite was much shattered and widely scattered by the terrific volcanic explosions. These diamond bearing rocks resemble fairly closely the kimberlite of South Africa, and geologists have given them the same name.

Though most of the Arkansas diamonds as yet discovered are very small, the larger stones are of a high grade in color, brilliancy and freedom from flaws. They range in color from white through yellow to brown. Many of them are as fine as any found anywhere else, several being pronounced by George F. Kunz, well-known gem expert, as "absolutely perfect and equal to the finest stones found at the Jagersfontein mine, or that were ever found in India."

The most promising Arkansas sites are in the hands of two mining companies that are not at present actively pushing production. Of the several thousand stones already found, at least two thousand have probably been picked up by a miner who is possessed of a most all-seeing eye. Lee Wagner, though he has found more diamonds than any other man in North America, still remains a faithful employee of a mining company near Murphreesboro, Pike County, Arkansas. When mining is not actually in operation, Lee acts as watchman and puts in all his watchmanly leisure watching for diamonds. The largest one in the National Museum, referred to above, was singled out by his eagle eye.

Most of the Arkansas diamonds thus far recovered have been picked up from the surface, and many of them are very small. What lies un-

(*Continued on page* 129)

News-Letter Features

Born over four years ago of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the SCIENCE NEWS-LETTER has since proved interesting to laymen, scientists, students, teachers and children.

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Important *anniversaries* of science are appropriately noted week by week in a special department.

Regular articles tell of the happenings in the *skies* and in the great *outdoors*.

Photographs aid in the telling of the week's science.

Great care is taken to keep its editorial content not only *interesting* but *accurate* as to fact and implication.

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PSYCHOLOGY

Blame For Student Suicides

People who blame the study of psychology for the wave of suicides among college students are either irresponsible or else ignorant of the science of psychology as it is taught in universities, according to Dr. Madison Bentley, professor of psychology at the University of Illinois.

The word "psychology" has been sadly used as a catch word to refer to a mixture of sex, business advertising, and characterology, Dr. Bentley says.

"But the psychology of the lecture room and laboratory has nothing in common with phrenology, palmistry, character readings and morbid prying into sex life and soul experience," he points out. "They are as unlike as chemistry and astrology, as sound physics and black magic."

The fact that young suicides are reported to have mentioned certain studies as leading them to take their lives is not convincing evidence, this psychology professor explains.

"The real causes of a desire for death are generally as far beyond the vision of the maladjusted youth as are the disease germs in an infected liver or in a lung. The mentally sick person is no more capable of diagnosing his disorder than the average person suffering from physical disease. To accept the references of the dead person as real causes without careful study is both superficial and childish. It suggests a presssing desire to believe that the university has poisoned the youth."

Science News-Letter, February 26, 1927

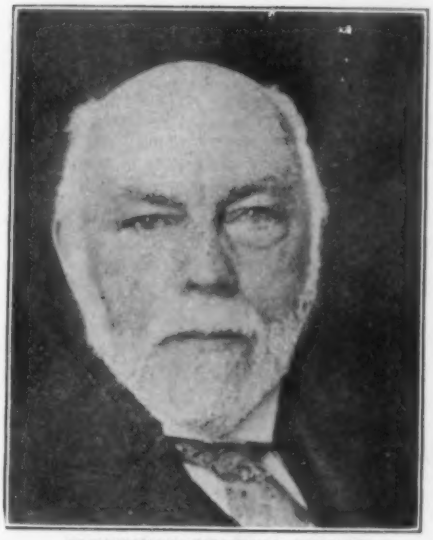
BOTANY

Tells Story of Cactus

Although exclusively American in origin, the cactus is a great traveler and has found its way into all the dry corners of the earth, according to Dr. J. N. Rose, associate curator of the U. S. National Herbarium at Washington. It was unknown in Europe before the voyages of Columbus, but soon thereafter was transplanted into Spain from Mexico, and thence spread rapidly all around the Mediterranean. It has now become very common in Palestine; and its red, fig-shaped fruits recently provoked from a traveler the remark that "in spite of the parable, it is now possible to gather figs from thistles in the Holy Land." Recent religious art has shown St. John the Divine standing by a cactus bush, and in another picture cacti were shown in the setting of the story of Ruth; but these are only rather comic anachronisms.

Science News-Letter, February 26, 1927

CHEMISTRY



FREDERICK BELDING POWER

Artist in Odors

The business of being a chemist is popularly supposed to be principally the creating of all sorts of bad odors, but here is a chemist who has included some pleasant smells in his repertoire. Though Dr. Power assumed his present position, as senior chemist in charge of the Phytochemical Laboratory in the Bureau of Chemistry in Washington, at 62, an age when many men begin to think about retirement, he has since accomplished what is perhaps his most important work. This work has accurately informed the world for the first time what the actual substances are that give fruits and flowers their flavors and fragrance. One of the most recent phases has been the identification of trimethylamine as the substance in cotton that attracts the boll weevil, a discovery that has opened up a new way of fighting this scourge of the cotton growers.

Dr. Power was born in Hudson, N. Y., in 1853, and after graduating from the Philadelphia College of Pharmacy in 1874 went to Strassburg, where he received his Ph. D. in 1880. Then he returned to his Philadelphia *alma mater* to take charge of the chemical laboratory. But in 1883 he was called to the University of Wisconsin to take charge of its newly formed School of Pharmacy, where he remained until 1892. Finally, in 1914, after organizing and serving as first director for two important industrial laboratories, he came to Washington, where he is still actively at work.

Science News-Letter, February 26, 1927

One silk company in this country uses up 3,000,000 cocoons in a day.

ARCHÆOLOGY

Ancient Tomb Robbers

Robbers who have broken into royal graves of old Egypt and escaped with the treasures cause much disappointment to scientists when they breathlessly open these plundered tombs. But the robbers were a still greater plague to the Pharaohs themselves, as secret tombs built for Egyption royalty show.

A tomb found at the Giza pyramids some months ago by the Harvard and Boston Expedition has now been pronounced the secret tomb of Queen Hetepheres, consort of King Sneferu who ruled in Egypt about 3000 B. C. This Egyption queen is said to be the mother of Cheops, one of the most famous of all the Pharaohs, a ruler who thought nothing of setting 100,000 men to work to make him a pyramid fine enough to be his monument and final resting place.

The mother of Cheops died soon after her son took the throne of Egypt. Not long after her burial robbers broke into the tomb. When the desecration was discovered the King ordered her body to be removed to this secret tomb, and the funeral furniture was packed in boxes and placed with the queen's mummy.

The alabaster sarcophagus with its canopy was placed last in the secret tomb and this has not yet been opened, though the framework of the canopy has been examined and is pronounced remarkable. The tenons and mortises are all sheathed in copper and resemble those of a modern bed. The upright pieces at the corners are clamped together by a copper bar with slot and tenons, and the attachments for the curtains are formed of copper staples driven into beams.

The most attractive object which has been found is the queen's gold jewel case, bearing her name. This case contains twenty silver anklets, graded in size to fit the leg, and ornamented with four dragonflies in malachite, lapis lazuli, and carnelian stones, with circles of red carnelian between.

Objects placed with the mummy in the secret tomb include a large amount of pottery which is of particular value to the scientists because it reveals new information as to early pottery types.

Science News-Letter, February 26, 1927

Sea grass grown in eastern Canada is used as stuffing for mattresses.

PHOTOGRAPHS OF SCIENTISTS

Science Service has a collection of nearly 2,000 photographs of scientists throughout the world. The fourth installment of this list is published below. Although this list has been checked with care, corrections are requested, since a complete catalog will be issued later. Photographs of scientists not listed are desired.

For the convenience of teachers and scientific enthusiasts, these photographs are offered for sale. Any ten photographs (each postcard size 3⅛ x5⅜ inches) will be sent postpaid for only $2.00. Enlargements, 8 x 10 inches, are $1.00 each postpaid. Postcard pictures are finished only in black and white, but enlargements are offered either in black and white or sepia on buff stock. Please specify which.

Starred (*) photographs can be furnished as $1.00 enlargements only. Photographs at these prices are sold with the understanding that they are not to be used for publication.

D (continued)

1438 Dunn, L. C., Genetics, Conn. Agr. Exper. Station
1501 Durfee, Winthrop C., Consulting & Mfg. Chemist, Boston, Mass.
1347 Du Rietz, G. Einar, Royal Univ. of Upsala, Sweden
672 Durrant, Edward Poe, Entomology, Ohio State Univ.
856 Duval, Charles W., Pathology, Tulane University
517 Dwight, Jonathan, Ornithology, Amer. Mus. Nat. Hist.

E

257 Eakle, Arthur Starr, Mineralogy, Univ. of Calif.
110 East, Edward Murray, Biology, Bussey Institution
1414 East, Elizabeth W., Zoology, Harvard University
273 Eastwood, Alice, Botany, Calif. Acad. of Science
6001 Eddington, A. S., Astronomy, Cambridge Univ., England
1304 Edgerton, C. W., Botany, Univ. of Louisiana
6012 Edridge-Green, F. W., Physiology, England
1364 Egerton, John B., Biology, Calvert Hall College
6066 Eichelberger, W. S., Astronomy, Naval Obs., Wash., D. C.
10023* Eliot, Chas. W., Pres. Harvard Univ.
1425 Ellis, Zenas H., Botany, Fair Haven, Vt.
1435 Ellsworth, R. M., Physician.
696 Edmunds, C. W., Pharmacology, Med. Sch. of Univ.
43 Edwards, D. J., Physiology, Cornell Med. Sch.
1118 Edwards, J. Graham, Physiology, John Hopkins Med. School
264 Edwards, M. G., Geology, Univ. of Calif.
1497 Ehrenfeld, Charles H., Pres., York Collegiate Inst., Chemistry
2077 Einstein, Albert, Physics, Berlin
618 Eliot, T. D., Sociology, Northwestern University
358 Ellerman, Ferdinand, Astrophysics, Mt. Wilson Obs.
382 Ellis, A. Caswell, Education, Univ. of Texas
715 Ely, Leonard W., Surgery, Stanford Med. Sch.
1131 Emerson, R. A., Genetics, Cornell Univ.
716 Embe, Ludwig, Gynecology, Stanford Med. Sch.
1466 Engle, W. D., Chemistry, Univ. of Denver
338 Epstein, Paul S., Physics, Calif. Inst. of Tech.
1104 Erdmann, Rhoda, Pathology, Univ. of Berlin
620 Erlanger, Joseph, Physiology, Wash. Univ. Med. Sch.
1276 Esaki, Shiro, Anatomy, Keio Univ., Tokyo, Japan
1481 Esselen, Gustavus J., Chemical Engineers
349 Essig, Fred M., Botany, University of California
335 Esterly, Calvin Olin, Zoology, Occidental College
2064 Eubanks, Carsner, Agriculture, Riverside Expt. Sta.
10022* Euclid
217 Evans, Herbert McLean, Anatomy, Univ. of Calif.
525 Evans, Ruth D., Mammalogy, Am. Mus. Nat. Hist.
580 Evans, W. V., Physical Chemistry, Northwest. Univ.
215 Evermann, B. W., Ichthyology, Calif. Mus. Acad. of Science

F

714 Faber, Harold K., Pediatrics, Stanford Med. Sch.
10026* Fabry, Charles, Physics, Inst. of Optics, Paris
995 Fairchild, H. L., Geology, Univ. of Rochester
992 Falconer, Sir Robert, President, Univ. of Toronto
5014 Farabbee, W. C., Anthropology, Univ. Museum
1223 Farr, Clifford H., Wash. Univ., St. Louis
208 Faye, Paul L., Anthropology, Univ. of Calif.
1085 Feemater, L. C., Jr., Pathology, Wash. Univ. Med. Sch.
1415 Feldman, Horace W., Genetics, Harvard Univ.
1091 Felsing, W. A., Chemistry, Univ. of Texas
10025* Fenneman, N. M., Geology, Univ. of Cincinnati
1443 Fenimore, Edw. P., Chemistry, Univ. of Pa.
1476 Ferguson, A. L., Electrochemistry, Univ. of Mich.
1303 Fernald, M. L., Taxonomy, Harvard Univ.
5013 Fernberger, Samuel W., Psychology, Univ. of Pa.
304 Ferris, G. F., Entomology, Stanford Univ.
301 Ferris, Roxana S., Botany, Stanford University
455 Field, R. M., Geology, Brown University
542 Fields, J. C., Mathematics, University of Toronto
1463 Fieldner, A. C., Chemistry, U. S. Bureau of Mines
6067 Finck, J. L., Physics, U. S. Bureau of Standards
463 Fischelis, Phillipp, Histology, Philadelphia
481 Fish, H. D., Zoology, University of Pittsburgh
806 Fisher, A. K., Biology, U. S. Biological Survey
913 Fisher, R. A., Statistics, Agri. Station, Rothamsted, England
285 Fisher, Walter K., Zoology, Stanford Univ.
807 Fisher, W. S., Entomology, U. S. Natl. Mus.
218 Fitzgerald, J. G., Hygiene, Univ. of Toronto
636 Fleisher, M. S., Bacteriology, St. Louis Univ. Medical School
1011 Fletcher, George, Botany, University of Arkansas
819 Fletcher, L. J., Agri. Engineering, Univ. of Calif.
435 Flexmer, Simon, Pathology, New York City
1237 Fogg, John M., Jr., Botany, Univ. of Pa.
966 Foote, Paul D., Physics, U. S. Bureau of Standards
1458 Forbes, George Shannon, Chemistry, Harvard Univ.
178 Forbes, W. T. M., Entomology, Cornell Univ.
276 Force, J. N., Hygiene, Univ. of Calif.
1196 Ford, William E., Mineralology, Yale Univ.
190 Foster, Goodwin L., Biol. Chem., Univ. of Calif.
279 Foster, H. E., Bacteriology, Cutter Laboratory
981 Fowler, Sir Henry, Engineer, Midland Ry., England
972 Fox, Phillip, Astronomy, Northwestern University
509 Foyles, Edward J., Invert. Paleontol., Am. Mus. of Nat. Hist.
1268 Franklin, Christine Ladd, Optics, Columbia Univ.
10024* Franklin, Benjamin
309 Franklin, E. C., Chemistry, Stanford Univ.
5001 Frazer, John, Chemistry, Univ. of Penna.
1433 Freas, Thomas B., Chemistry, Columbia Univ.
1393 French, R. W., Dye Chemistry, Med. Museum, Wash., D. C.
344 Friauf, James B., Physics, Carnegie Inst. of Tech.
623 Friedman, T. E., Biochemistry, Wash. Univ. Med. Sch.
1359 Fromme, F. D., Plant Pathology, Va. Poletechnic Inst.
6068 Frost, Edwin B., Astrophysics, Yerkes Observatory
120 Fry, H. J., Zoology, Columbia Univ.
1487 Fry, Irving W., Chemistry, Polytechnic Inst. Brooklyn
1018 Fueter, Rudolph, Mathematics, Univ. of Zurich, Switzerland
1322 Fukushi, T., Botany, College of Agric. Tottori, Japan
588 Fuller, George D., Plant Ecology, Univ. of Chicago
554 Funnell, W. S., Chemistry, University of Toronto
253 Furlong, E. P., Paleontol., Univ. of California

G

799 Gahan, A. B., Entomology, U. S. Nat. Museum
10030* Galileo
10029* Galton, Francis, Statistics
114 Galtsoff, Paul S., Zoology, U. S. Fisheries, Wash., D. C.
221 Gardner, N. L., Aegology, Univ. of Calif.
10 Garrey, W. E., Physiology, Vanderbilt Univ. Med. Sch.
72 Gates, R. R., Botony, Univ. of London
866 Gault, Charles C., Biochem., Texas Med. Sch.
599 Gault, R. H., Psychology, Northwestern Univ.
524 Gay, Hazel, Library, Am. Mus. of Nat. Hist.
286 Gay, F. P., Bacteriology, Univ. of California
472 Geddes, Patrick, Botany, Univ. of Edinburgh
1117 Geiling, E. M. K., Pharmacology, Johns Hopkins Med. Sch.
101 Geiser, S. W., Zoology, Wash. Univ. Med. Sch.
10031* Gerard, Chemistry, Paris
602 Gerhard, W. J., Entomology, Field Mus. Nat. Hist.

(To be continued)

SCIENCE SERVICE

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MEDICINE

Experimental Toothaches

Students of pharmacology have offered themselves as volunteers in a "toothache squad" to find out what drugs are the most effective in quelling an aching molar. Dr. Hans Heinroth, a member of the faculty in the department of dentistry at the University of Halle, Germany, conducted the tests which put morphine at the top of the list of the dental pain relievers.

The volunteers submitted to having an electric current passed into their teeth. When pain was produced in this way a signal was given by the sufferer, who sharply raised his right hand. A drug was then administered and the time it took to relieve the pain—or not to relieve it in some cases—was recorded. The drugs most often used to relieve toothache, headache and neuralgia were among those tried. They included quinine, aspirin, pyramidon and phenacetin. Of this group phenacetin was the most effective, and Dr. Heinroth suggests that it is probably better as a cure for normal pain of this type than its allies, which he says are on the whole used more often.

Among sedative drugs hedonal was found to have the best results. Heat and cold were also tried. In the case of toothache heat was found to increase the suffering, whereas cold gave relief. A little alcohol very slightly increased the painful sensations, but a large dose had the effect of blunting them.

Scopolamine, which is used with morphine to induce "twilight sleep," was tried out but was not found to be particularly efficacious in relieving toothache.

Science News-Letter, February 26, 1927

American Diamonds

(*Continued from page* 126)

derneath to adorn the fingers of America's future brides only time and hard labor can tell. Geologists will not go so far as to say that we have another Kimberley down in the Ozarks, but many of them admit that diamond prospects in Arkansas are at least promising.

Fortunately peridotite is easily recognized by petrologists and geologists, so that would-be investors in possible diamond bearing lands need not be fooled out of their money if they call in expert advice before they actually buy. It is a good thing to remember in this connection that a glassy pebble that will not take a scratch from a piece of emery is

DR. W. F. FOSHAG, mineralogist of the U. S. National Museum, with one of the Arkansas diamonds. He has the job of putting in order and arranging in the museum files pounds of topazes, ounces of opals and some 16,000 other specimens in the famous Roebling collection.

worthy of an examination by a mineralogist. Furthermore, though the diamond is the hardest substance known, hardness does not mean strength, and pounding the suspected gem with a hammer is no fair test of its genuineness. There are several records of American diamonds that have failed to survive this drastic treatment which is popularly supposed to be a sure way of proving a stone's value.

Several diamonds have been found and equally many have undoubtedly been lost in gold placers in California. They are thought to be originally derived from the same type of diamond bearing rock that has been washed down in broken bits in streams from the mountains of volcanic origin. Most of them are small, and there is no telling how many more of the white glassy crystals have been thrown out of the rockers and washing pans of miners interested only to the gleam of yellow dirt.

In the Piedmont region of the Atlantic coast there have been a few found. Virginia claims a single isolated diamond, a big one around 23 carats having been dug up by a laborer working on a street excavation in Manchester as long ago as 1855. In Dysartville, N. C., a shiny pebble later found to weigh four and two-thirds carats attracted the attention of a little boy sent to a spring for water. He fished it out and carried it home. where it excited sufficient interest on the part of the grown-ups to send it to New York for examination. It proved to be the real stuff, and a model of it was displayed in the Paris Exposition of 1889. It is now in the

(*Just turn the page*)

SOCIOLOGY

World Figure Code

A new international language, which aims to make it easier for people of one nation to communicate with another, has been invented by an officer in the U. S. Army. The language inventor is Capt. Manly B. Gibson, of the U. S. Coast Artillery, and the language is made out of the common numerals zero to nine, which are familiar to people in most civilized parts of the world.

The system, known as the Gibson code, is said to be applicable to wire, letter and radio communication between different countries. The inventor has so arranged the code that each of 10,000 principal words in the English language is represented by a number, and this number also represents the corresponding word or idea in 20 other important languages.

All nouns begin with the figures 1, 2 or 3; verbs start with the figure 4; adjectives with 5; adverbs with 6; pronouns with 7; conjunctions with 8; and prepositions with 9. Thus in this code: "The boy eats the red apple" would be written: 5 111 409-10 5 516 2013. The hyphenated figure representing the verb signifies its tense. That is to say, if a verb number is followed by a hyphen and the figure 10 it is present tense; and if followed by a hyphen and the figure 30 it is future tense. Likewise the singular and plural nouns are designated by odd and even numbers respectively; for example, 111 means "boy" in any language whereas 112 denotes the plural "boys." In each sentence the predicate is underscored by one line and the subject by dashes by the writer. Direct questions are preceded and followed by interrogation points. Numbers are differentiated from words by being preceded by #.

The code books of the new system will have two parts—a writer's and a reader's section. The writer's section, to be used when composing messages, will be a list of words in alphabetical order followed by the code number assigned to them. The reader's section, on the other hand, will be numbers in numerical sequence followed by the words in that particular language they represent, and will be used when deciphering messages.

The practicality of the new code system has been put to test at the Presidio in San Francisco where groups of soldiers speaking different native tongues and equipped with

(*Just turn the page*)

World Figure Code

(*Continued from page* 129)

code lists were given sentences written out in numbers to decipher. They were able to do this quickly and correctly after the system had been explained to them, as well as write up their original ideas and sentences into code form, for the others speaking different languages to translate.

Captain Gibson, who is stationed at Fort Baker, said that the idea for such a code came to him during the World War when he was in command of a company of foreign-born Americans at Camp Lewis and it was not always easy to express himself so that they could understand.

Science News-Letter, February 26, 1927

Over 50,000,000 people in the United States and Canada, or 45 per cent of the population, have no local public libraries.

In order to keep track of the seal population on the Pribilof Islands, 10,000 one-year-old male seals are to be sheared this year.

Wireless engineers say that doves have difficulty in finding their way home where there are a number of broadcasting stations.

Some kinds of female mosquitoes are vegetarian in their diet, but the most familiar kinds prey on animals and man for their food.

An Australian company has imported 15 tons of typical tobacco soil from North Carolina in which to grow tobacco for a series of tests.

The longest surveyed straight line in the world is believed to be the 700 mile boundary between Alberta and Saskatchewan, in Canada.

Establishment of a division of history in the National Academy of Sciences is advocated by Dr. Michael Pupin, of Columbia University.

International trade terms used by business men of 24 countries are being collected into a book by the International Chamber of Commerce.

Moving pictures are now being used in the steerage of the Atlantic steamers to teach Americanization to immigrants coming to this country.

State laws to protect the bear during the breeding season and make it a game animal are urged by the American Game Protective Association.

American Diamonds

(*Continued from page* 129)

Tiffany Morgan Collection in the American Museum of Natural History. Several others have been found in the mountainous parts of the state mostly associated with gold placers.

Several stones of considerable size have been found in the Great Lakes section. One weighing 15 carats was turned up in Wisconsin while a well was being dug. It was given to a woman who was a tenant on the property who sold it for a dollar, but extensive litigation ensued when the real value of the stone came out. The jeweler defendant was eventually acquitted on the ground that he was ignorant of the value of the gem when he bought it. It finally passed into the Tiffany collection where it still remains. The largest diamond, so far as is known, that has appeared in this region, weighs over 21 carats, and was brought to light by a Wisconsin farmer while ploughing a field. Several have been found in Michigan and a few in Indiana and Illinois

Geologists who know the region say that systematic search in farmhouses around the Great Lakes where collections of local "curios" have accumulated on clock shelves and corner whatnots, would probably yield several more. About one a year have been coming to light throughout this section since 1894. The color of these stones ranges from pure white to white tinged with pale green or pale yellow.

All of these Great Lakes diamonds have been found in close association with glacial drift deposited by the great ice invasion that slid over the northeastern states from the Arctic north some 80,000 years ago. Just where the original source of the diamonds is, or was, no one knows. Somewhere up in the Arctic region the great glacier froze onto the glittering crystals, carried them southward, and left them scattered around the shores of the Great Lakes when it melted. The problem has fascinated more than one scientist. Studies have been made of the direction of the ice movement and the localities showing the fan of diamond distribution have been carefully noted with the idea of getting some innoted with the idea of getting some in them up. To date, however, the great diamond store of the Arctic, if there is one, remains securely hidden under the ice fields of northern Canada. Here is a project to allure the scientists and miners of coming generations when all the more accessible sources of the world's diamond supply have become exhausted.

Science News-Letter, February 26, 1927

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ASTRONOMY—ARCHÆOLOGY

Origin of Maya Calendar

The simple method by which ancient wise men of tropical America observed the sun and were able to tell their people when to plant crops has been discovered by Mrs. Zelia Nuttall, well-known authority on Mexican archæology. Mrs. Nuttall, who has spent over thirty years studying the antiquities and early history of ancient Mexico, is now in Washington, where she explained her theory to the American Anthropological Association. On their arrival in the New World the Spaniards were surprised to find that the natives had an accurate knowledge of the length of the solar year. This remarkable fact has hitherto been explained as an indication that early astronomer priests, even in primitive communities, must have made careful observations of the sun and must have gradually worked out a system of calculating and recording the average number of days between the longest and shortest days in the year. Mrs. Nuttall found that such difficult, complicated and sustained mental efforts were not necessary nor probable.

"All the centers of ancient American culture," she explains, "are situated within the tropics. In this zone the sun passes twice a year through the zenith, the result being that twice a year at noon there occurred the momentary striking phenomenon of all vertical objects casting no shadow.

"Archæological and documentary evidence establish beyond doubt that the Mexicans, Maya, Peruvians, Ecuadorians, and others inhabiting the tropical zone observed the periodical strange and momentary disappearance of shadows and interpreted it as 'a descent of the Sun-God.'

"This 'descent of the god' was of outstanding importance to the primitive farmers, because it was always accompanied by rains, caused by the heat of the vertical solar rays. The priests or wise men who observed the 'descent of the god' could thus safely assure the people that the time was ready for them to sow the seeds of maize and other food plants."

The first means by which the solar phenomenon could have been noted, were plain vertical posts or upright stones. But later, Mrs. Nuttall believes, the people began to feel that more worthy places of rest should be provided for the descending Sun-

(*Just turn the page*)

PHYSIOLOGY

Milk Relationship

The ancestral strain that unites all the higher animals has been demonstrated through their milk no less than through their blood chemistry. Researches on the lowest of the mammals, just finished at the University of Adelaide, Australia, by Prof. H. R. Marston, have completed the data available on the composition of milk throughout the range of animals that nurse their young on this fluid.

The two chemical compounds most characteristic of all kinds of milk are milk sugar, or lactose, and casein, the latter the proteid substance that forms the basis of cheese. Both these compounds are unique, being found nowhere else in the animal or vegetable kingdoms. Other proteins of milk are likewise distinct, but they are not so profoundly different from the proteins of other sources as is casein.

Here is striking evidence of a father and son—or perhaps better, a mother and daughter—relationship among all the hosts of mammals. This is the one thing in common possessed by all the higher animals. As we pass down from man through the apes, dog, tiger, cow, whale, bat, rat, and armadillo to the duck-bill, we arrive at an animal that is obviously closely related to the reptiles, for it hatches its young from eggs and has reptile-like jaws.

"The Echidna," says Prof. Marston, "transfers the egg to its ventral pounch, which in the breeding season becomes a functional incubatorium, where it very soon hatches, and the embryo obtains its nourishment by nuzzling the milk secreted from the many openings of the mammary ducts, which are scattered over the surface of the breast in the region of the pouch. There is no development of a definite teat."

Prof. Marston found the milk of the Echidna exceptionally high in fat, 19.6 per cent. being present. Among milks known at present this is equalled only by that of the reindeer and the whale. The monotreme milk had three times the protein content of cow's milk.

Thus from the simplest mammal to the most exalted we find milk; and this milk always contains lactose and casein, and lactose and casein are found nowhere else. They constitute a continuous thread running up and down through the mammalian world. And they are a strong

(*Just turn the page*)

ETOMOLOGY

War on Corn Borer

The United States has officially declared renewed war upon a foreign invader. By authorizing the appropriation of $10,000,000, almost the cost of a first-line armored cruiser, Congress and the President have recognized the menace, not of armed men, but of an army of insects, the European corn borers. The stake of the battle is the corn crop, valued at $1,703,430,000 for the past season.

The corn borer is a strong fighter and has gained an almost conclusive victory in Canada, where it has reduced the corn acreage 90 per cent. Although it is in this country to stay, it has been the hope of government entomologists to keep it confined to states where it will do the least damage and to keep it out of the great corn belt. The borer has been getting nearer and nearer to the corn belt and just recently took its first plunge deep into this sector, appearing in Kankakee county, Illinois.

Annually the U. S. Bureau of Entomology gets an appropriation from Congress for research and quarantine work. Ten million dollars is now asked for an experimental campaign in improved crop methods. It is a clean-up campaign to reduce the chances of spread by reducing the number of borers present in infested areas. The money is wanted at once, for the work must be done by June first. The bill just passed is an authorization bill and must be followed by the actual appropriation of funds.

Effort is being made to rush an appropriation measure through Congress since the last deficiency bill will not come up for some time and the delay would be costly to the control measures.

No matter how soon the appropriation will be made it is understood that not a penny of the money will be used until the state legislatures in the affected districts pass regulatory legislation empowering federal and state men to go into the corn fields for the necessary clean-up work planned.

Science News-Letter, February 26, 1927

Benjamin Franklin invented a peculiar musical instrument.

Roman seamen were troubled by ship borers that made honeycomb of their wooden galleys.

Pork should be thoroughly cooked, because poorly cooked pork may harbor parasites of a disease known as trichinosis.

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Milk Relationship

(*Continued from page* 131)

part of the evidence that mammals evolved one from the other. In the evolving process milk persisted because it proved to be a most desirable means of rearing the young. It needed no improvement, therefore it persisted, even through all the branches and twigs of the great mammalian tree, as it grew and developed from the primitive seedling.

Science News-Letter, February 26, 1927

The anaconda is the most dangerous of constricting snakes.

Coffee was introduced into England in the seventeenth century.

A meter to measure the force of a swimmer's stroke has been devised.

Chocolate drunk by the Mexicans is sometimes flavored with red pepper.

In the days of Hamurabi, 4,000 years ago, perfumery was considered so essential that even servants were ordered to use it.

The Indians of the New World had already domesticated the guinea pig, llama, turkey, and alpaca by the time Columbus arrived.

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Origin of Maya Calendar

(*Continued from page* 131)

God. Sun-pillars, stelae, stone seats, altars, towers, and even shrines and temples were set up to celebrate this great and mysterious phenomenon, and in time an elaborate ceremonial was developed, which included the offering of blood and sacrifice of human victims.

In the light of this discovery, ancient American religions, art, and calenders take on new aspects. The Sun-God, who is so widely depicted in the Mexican Codices and bas-reliefs and on Maya temples with his heels in the air and his head far below them, has generally been termed "the diving god." According to Mrs. Nuttall's interpretation of these figures, the god is descending through the air and the feather-like decorations on his arms are symbolical like the wings with which angels are represented in Christian art. Many of the carved and painted representations of the Sun-God in the form of a human being, bird or jaguar, show him accompanied by plumed serpents which symbolize the rains from heaven associated with him.

Another mystery she has explained simply is that of the strange "Chultunes" of Yucatan. These are subterranean structures shaped like a long-necked decanter with a circular opening at the top, large enough for a person to be lowered into the chamber below by means of a rope. Mrs. Nuttall pointed out that these awe-inspiring underground rooms, with the round opening at the top, were designed so that the priest-astronomers could register privately and accurately the passage of the sun through the zenith. At this moment the solar rays would enter directly into the vertical shaft and fall exactly on the center of the floor below.

She also pointed out that the smaller vertical shaft recently discovered in the exact center of the core of the round temple known as the "Caracul" at Chichen-Itza was admirably adapted for the same purpose.

Mrs. Nuttall believes that there is no reason why this simple means of accurately determining the length of the year and an analogous solar cult should not have originated and evolved independently in the tropical zone and under identical climatic conditions in other parts of the world, such as Ethiopia, Nubia, and India.

Science News-Letter, February 26, 1927

MEDICINE

T. B. "Cure" Fails

The widely acclaimed Spahlinger method of treating tuberculosis, has received little support from a recent investigation in England. Henri Spahlinger of Geneva, Switzerland, developed several years ago a secret remedy for the treatment of tuberculosis, which has attracted considerable attention both in Europe and this country. Spahlinger and his friends have repeatedly attempted to secure government endorsement in England for this remedy and funds for its further development.

The American Medical Association has issued statements from time to time that the method should not in any way be considered established, and now Dr. Thomas Nelson of the staff of St. George's Hospital and the Brompton Hospital in London has just made public the records of ten patients treated by Spahlinger himself during the period between November, 1913, and November, 1914.

After ten years seven of these cases were dead. Two who had types of tuberculosis that are not particularly fatal are still living, and one could not be traced. Only one of the seven now dead was alive as late as 1921. All cases were of the sort, according to medical authorities, in which an arrest of the disease with a return to a reasonable amount of health might have been expected if the method were of value.

The editors of the Journal of the American Medical Association point out that "The evidence in favor of the Spahlinger method of treating tuberculosis is not sufficient at this time to warrant an extensive trial. The burden of proof is still on Spahlinger, who should at least show that in a considerable number of cases studied under controlled conditions the remedy will accomplish more than can be accomplished by the method of treatment now practiced in well regulated institutions for the treatment of tuberculosis."

Science News-Letter, February 26, 1927

ENTOMOLOGY

Bug-Proof Golf Greens

Bug-proof golf greens are anticipated with the discovery of a new method of treatment. Arsenate of lead in powder form, mixed with the soil to a depth of three or four inches before seeding, will keep sod and lawn free from ravages of the Japanese beetle, other white grubs, earth worms, and, in fact, anything that feeds in the upper section of soil.

Science News-Letter, February 26, 1927

PSYCHOLOGY

Tests Mechanical Skill

A simple pencil and paper test which measures an individual's mechanical ability is the newest scientific yardstick to help fit the right man, or woman, to the right job. The new test has been devised by Dr. T. W. MacQuarrie, of the University of Southern California.

Details of Dr. MacQuarrie's investigation, just reported to the *Journal of Personnel Research*, show that he has produced a test for general mechanical ability, rather than a test to find out whether an individual would make a good auto repair man or a good steam fitter.

"There are very few mechanics," he says, "who believe that work in one craft is different from work in any other. Most real mechanics feel that they could have learned any other mechanical trade just as esaly as the one they selected, and, as a matter of fact, are proficient in two or more lines, and keep employed in one as well as in another."

Hitherto, psychologists have depended on tests with workshop equipment as the most satisfactory means of showing whether or not an individual is good at using his hands. The new test, which requires a lead pencil as its single tool and a school desk as its shop bench, is less expensive than the tests with apparatus. The new test can be given to a large number of people more easily. It is equally fair, Dr. MacQuarrie finds, for the girl with a leaning toward engines and tools but no real experience, and for the man who is used to tinkering with complicated apparatus. And, what is most important, the paper test has stood preliminary tests of its usefulness, and is reported promising as a reliable gauge of mechanical ability.

The test consists of seven parts. In one section, the competitor shows his ability to draw lines quickly without touching other lines. In another part, he shows the speed and precision with which he can use his hands by rapidly putting three dots in each circle along a great many little circles. In another he is given a sheet covered with a network of curving, irregular lines, and told to trace each line across the sheet without losing track of it.

The test is not a mental test, the psychologist explains, but is intended entirely to show what the individual can do with his hands after he is thoroughly familiar with the directions.

Science News-Letter, February 26, 1927

Vulcanized paper fiber is used to make flashlight cases.

BIOLOGY

Booze and Rats

It does an individual no good—and no particular harm, either, apparently—to be the descendant of ten generations of hard-drinking ancestors who could "hold their liquor." At least, this is the case if what is true of mice is true also of men. Results of researches on the grandchildren of ten generations of chronically alcoholic rats, conducted at Washington University in St. Louis by Prof. Frank B. Hanson and Florence Heys, indicate that these animals have no better "heads" for liquor than have other rats whose ancestors have all been rodents of strictest probity and sobriety.

The experimenters tested their animals in groups of ten, five being descendants of rats which for ten generations had been made drunk very frequently by subjecting them to fumes of evaporated alcohol, and five the descendants of ancestors that had never known the drug. They caged the whole ten in a tight box with a plate glass front, soaked the air in it with alcohol fumes, and timed the animals as they became intoxicated and keeled over. They repeated the experiments on successive days, to see how fast the rats built up a resistance to the dizzying vapors. They used six different groups of ten rats, each of the same weight and sex.

When they came to check up their results, they found that the descendants of the drunken rats had no better resistance to alcohol when they first encountered it than had the offspring of the sober ancestry, and that there was no significant difference, either, in the rate at which the two groups built up their resistance on subsequent enforced sprees. In fact, if anything, the sober-ancestored group built up resistance a shade faster than did their companions, but the experimenters do not feel that the difference was great enough to justify any definite conclusion.

The most significant fact about the experiment, in their opinion, is that the negative results they obtained constitute another case in which a character or ability acquired by the parents was not inherited by their offspring—a point which has long been a subject of perennial dispute among students of evolution.

Science News-Letter, February 26, 1927

A hibernating toad can survive cold that would kill a mammal.

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220 Bible
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670 Manufactures
680 Mechanic trades
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710 Landscape gardening
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730 Sculpture
740 Drawing. Decoration. Design
750 Painting
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830 German
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MEDICINE

Salt For Dyspepsia

Common salt is as effective as any other remedy for dyspepsia according to reports of research at the University of Melbourne, Australia. Dr. F. A. Apperly has found that common salt helps certain types of plain dyspepsia.

Doctors have long been puzzled because either sodium bicarbonate or hydrochloric acid, direct chemical opposites, proved efficacious in remedying some dyspepsias. The reason appears to be that the governing factor is the total salt strength of the stomach contents and not the reaction. The contents may be either right or wrong as to acidity but if the salt strength as a whole differs from that normally in the small intestine at rest, the intestine will promptly reject the mixture back into the stomach until it is of the right concentration. This rejection prevents the stomach from emptying and this, in time, gives the patient also an unpleasant sense of fullness.

Taking either hydrochloric acid, sodium bicarbonate or common salt will in any case increase the salt concentration of the stomach contents of such patients until this equals that of the contents of the small intestine. Then the intestine ceases to reject the mixture from the stomach and digestion proceeds without discomfort. Needless to say, no patient can casually experiment with himself and an examination of the stomach contents remains obligatory in any scientific treatment of dyspepsia, but Dr. Apperly's finding clears up the mystery so far surrounding the nature of certain types of simple dyspepsias.

Science News-Letter, February 26, 1927

CRIMINOLOGY

An Eye for an Eye?

By Lewis E. Lawes

Mr. Lawes, as warden of Sing Sing, knows criminals as few experts get to know them. His views on the death penalty, recently voiced at a meeting of sociologists and criminologists, aroused considerable interest. In the following article he states exactly why he considers capital punishment antiquated, inefficient, and inhuman.

The infliction of the death penalty originated among primitive savages by whom it was used to eliminate their "unfit," i. e., the deformed, crippled, aged, insane, and others who might hamper the family or tribe in its movements. If this seems cruel, one should bear in mind that the practice at least served a practical purpose that can be defended with better logic than capital punishment for murder at the present time.

As mankind progressed through barbarism into the early stages of civilization, the principle of atonement and "an eye for an eye" evolved from animistic religious beliefs. This principle is not mentioned in the Bible until after the Jews had come under the influence of the Egyptians—Cain was not killed for the murder of his brother —, and the Mosaic law was repudiated later in the teachings of Jesus.

The tendency of enlightened civilization has always been toward the abolition of the death penalty. Greece in its "golden age" substituted exile or a money settlement and Rome abolished capital punishment in 453 B. C. When an attempt was made to restore it later, Cicero lead the opposition declaring that "not only the execution, but the apprehension, the existence, the very mention is disgraceful to a freeman and a Roman citizen."

It was in England during the reign of Henry VIII that the death penalty was most widely inflicted. At one time during this period 240 different offenses ranging from the theft of a handkerchief to murder were punishable by death. Crime was not decreased thereby but on the contrary it increased the identical crimes for which it was specified. At the present time England prescribes the death penalty for only two offenses.

In the United States the death penalty was at one time prescribed for over 100 different offenses. Gradually, however, the capital offenses have been reduced or abolished altogether. In fact, at the present time it is absolutely mandatory for murder in the first degree in only eight states, although it can be applied as punishment for rape, robbery, arson, horse theft and other crimes in certain states. Incidentally, those states that inflict the death penalty have the most crime, including the crimes for which capital punishment is prescribed.

The death penalty for first degree murder assumes (1) that murder is the worst of all crimes, and (2) that it is the severest penalty and, therefore, best fits the crime of murder.

Granting for the sake of argument that first degree murder is the worst crime and that the severest penalty should be prescribed, is the death penalty in fact the most severe punishment? It is my judgment based upon the observation of over 500 murderers that life imprisonment is a greater punishment and feared more than death in the electric chair. In the infliction of the death penalty in the

(*Just turn the page*)

NATURE RAMBLINGS

By Frank Thone

55

One would hardly be likely to think of the porcupine as a fur-bearing animal, any more than he would think of the cactus as a leafy plant. Yet the spines of the porcupine are nothing but bundles of hairs cemented together and brought to a point, just as the spines of the cactus are merely reduced and modified leaves. Moreover, the porcupine belongs to one of the most prominent of the families of fur-bearing animals, to-wit, the rodents, and is therefore a kinsman of the beaver and the muskrat and the humbler but still popular rabbit. His name, by strange perversity of Early English derived from French, means "spiny pig"; he thus shares the dishonors of misnomenclature with his rodent cousins, the guinea-pig, and the groundhog. There is nothing at all porcine about any of them, except that they are all inordinately fond of eating.

The greediness of "porky" may yet be his undoing. Hitherto regarded by woodsmen as a harmless enough creature, and handy to have around if one ran short of meat, he is increasing in numbers in almost the ratio that our native timber supply is diminishing, and he is increasing at the expense of the trees. For "the fondest thing which he is of" is to climb about half-way up a promising tree and then gorge himself on the bark, tearing off great areas of it and frequently completely girdling the tree, which then of course dies. A "red-top" in a pine forest usually means there has been a porcupine at work there; and it may become necessary to withdraw the tolerance he has always enjoyed for the sake of the trees. One cannot afford to fatten porcupines on potential houses.

Science News-Letter, February 26, 1927

There are about 160 different species of persimmon, but only two are found in the United States.

A scientist has figured that once around the universe is 63,000 billion times the distance from the earth to the sun.

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An Eye for an Eye?

(*Continued from page* 135)

electric chair there is perhaps a fraction of a second of pain, but in life imprisonment there are long dreary days of pain and remorse that extend into months and years that lead at last to the grave.

Life imprisonment in lieu of capital punishment is objected to by many on the ground that the murderer may later be released by pardon. As a matter of fact natural lifers are rarely pardoned, only one man having been pardoned from Sing Sing in the last seven years; and he had been in prison over 19 years.

The "possibility" of a pardon, which is not a probability, is one of the reasons why life imprisonment should be substituted for the death penalty, as it is only in this way that a horrible mistake can be corrected. It is human to err, and witnesses, juries and judges are human and make mistakes, and it is a fact that innocent men have been executed. If we accept the principle of "a life for a life," whose life shall be taken to atone for the life of a man executed by mistake?

The question as to the right of the state to take a man's life, although generally conceded, is debatable, and a great deal can be said for the negative. Among the inconsistencies of the matter, I call attention to the fact that the killing of the condemned man is done with greater deliberation than was ever exercised by the most cold-blooded murderer. Under its own definition of murder the state is itself guilty of murder when it inflicts the death penalty.

There is a constantly increasing number of people who are opposed to the death penalty on conscientous grounds, and this fact makes it difficult to secure a really intelligent jury in a first degree murder case, although such a jury would willingly serve if life imprisonment could be substituted. Under present conditions many who are really guilty and deserve punishment are freed by juries that subconsciously rebel at the principle of capital punishment, especially if the defendant has an able lawyer who can play on their emotions. In my opinion there would be more convictions for murder if life imprisonment were substituted for the death penalty.

Murder is the real problem, not the murderer. We cannot by killing a man bring back to life the man he killed, but we can and should do something practical toward preventing murder. For example, effective regulation of the sale and ownership of firearms, such as exists in many countries of Europe, would undoubtedly decrease murder—some authorities say 75 per cent.

I contend that the death penalty is a relic of savagery, perpetuated by custom and in ignorance, maintained by false assumptions, and consummated in an act that is legal only in name. It is illogical and inconsistent with religion and morality. It condones in an act of an agent what would be murder for an individual citizen. It carries out in secrecy what would be revolting in public. It is man-made and therefore fallible and subject to the perpetration of gross injustice. It is ineffective as a deterrent and sets an example for murder. And, finally, it violates the conscience of an enlightened mankind.

Scientific Poetry Contest

Dust off your riming dictionaries, rumple up the pages of your favorite physics, chemistry or biology, set your poetry mill to working. For the Science News-Letter invites you to feed its omnivorous appetite with tidbits in which poetry and science are pleasingly combined. The scientific poetry contest is on!

Conditions: Poems, verses, rimes, jingles or what-have-you must be original and unpublished. They must express accurately some scientific fact or situation. Address: Poetry Editor, Science Service, 21st and B Sts., Washington, D. C. Keep a copy, as unavailable contributions can not be returned.

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ARCHÆOLOGY

Indians Had Mysterious Art

How Indians who lived in Georgia in prehistoric times learned to make art objects very similar to the famous art of the Aztecs in far away Mexico is still a puzzle problem, according to Prof. Warren K. Moorehead, of Phillips Academy.

The famous Etowah mounds near Cartersville, Georgia, were noticed by travelers almost 200 years ago. Back in the eighties, they were partly opened, and then abandoned by science until recently. During the past two seasons, Phillips Academy has sent an expedition there which will eventually complete the work of excavating these ancient mounds and the village there.

A large collection of pottery, skeletons, terra cotta effigies, flint swords, textiles, and other objects have been found at the site. Shells and copper plates on which the artists of these pre-Columbian Indians had wrought designs are of particular interest. Human figures on the engraved shells and copper plates nearly correspond to certain early Mayan or Aztec portrayals of human beings, Prof. Moorehead has found. Some of the scenes shown on these objects are thought to represent human sacrifice, one of the well-known rites of the Aztec.

Whether traders or prehistoric tourists brought samples of Toltec art or brought descriptions of what they had seen in Central America is a question on which the archæologists are speculating. The possibility of the art ideas having been brought to the southern states directly across the Gulf is also being taken into consideration.

Science News-Letter, February 26, 1927

BACTERIOLOGY

Bacteria Carry Own Enemies

Streptococci, the deadly chain-germs whose various species cause such diseases as blood poisoning and scarlet fever, are constantly haunted by germs of their own that prey upon them and may turn and devour them if conditions become right, according to Dr. L .O. Dutton, director of the laboratories of the Methodist Hospital at Memphis, Tenn. The Southern scientist has found a number of strains of Streptococcus always in "mixed culture" with corresponding strains of bacteriophage, that mysterious and much-disputed something, claimed by its discoverer D'Herelle to be living though invisible, that preys upon bacteria as many bacteria prey upon us.

Science News-Letter, February 26, 1927

BIOLOGY

An American Menu

Quotation from CARGOES AND HARVESTS. By Donald Culross Peattie. New York: Appleton. $2.50.

At breakfast no oranges or grapefruit, no oatmeal, no cream of wheat, no grapenuts. At dinner no peas, no cauliflower, no cabbage, no radishes, no carrots, no lettuce. Turnips, asparagus, celery, artichokes? Never heard of them. Tea or coffee? Absolutely unknown.

Something like this would have been the situation if the white race had had its origin in the New World, and the Old World had never been discovered. For all the plants which have been mentioned existed, before the days of Columbus, only in the Old World. Leaving out of consideration meat diet, we would under these conjectural conditions have corn meal mush for breakfast, with a nice slice of cooling *papaya,* or possibly some raspberries or blackberries. At dinner we might eat pokeweed for greens, and Jerusalem artichokes, corn fritters, potatoes, pumpkins or squash, sweet potatoes, tomatoes, kidney and lima beans, *chayotes* and chili peppers. Guava jelly might be served, and perhaps an avocado salad, and by way of beverages, chocolate, yerba maté, or possibly cassina tea. As dessert we would enjoy a few slices of pineapple and perhaps a *cherimoya.* For candy, we should have the peanuts to make peanut brittle, but it could not be made with cane or beet sugar. Such would be our circumscribed menu.

Science News-Letter, February 26, 1927

PHYSICS

Revolution of the Corpuscle

A corpuscle once did oscillate so quickly to and fro,
He always raised disturbances wherever he did go.
He struggles hard for freedom against a powerful foe—
An atom—who would not let him go.
The aether trembled at his agitations
In a manner so familiar that I only need to say,
In accordance with Clerk Maxwell's six equations,
It tickled people's optics far away.

The corpuscle radiated until he had conceived
A plan by which his freedom might be easily achieved;
I'll not go into details for I might not be believed,
Indeed, I'm sure I should not be believed.
However, there was one decisive action.
The atom and the corpuscle each made a single charge,
But the atom could not hold him in subjection,
Though something like a thousand times as large.

The corpuscle won the day,
And in freedom went away,
And became a cathode ray.
But his life was rather gay,
And he went at such a rate
That he ran against a plate;
When the aether saw his fate
Its pulse did palpitate.

—From *Post-Prandial Proceedings of the Cavendish Society,* Cambridge, England.

Science News-Letter, February 26, 1927

First Glances at New Books

THE NATURAL HISTORY OF OUR CONDUCT—William E. Ritter—*Harcourt Brace and Co.* ($3.50). A book calculated to make its readers look at both animals and men in a new light. How such creatures as birds and bees and squirrels use their heads and hands—or what corresponds to hands—has been studied by Dr. Ritter in order to make the whys and wherefores of human conduct more understandable. "The significance of this mass of material for the interpretation of human conduct," he explains, "depends on the assumption that human animals and brute animals belong to one great family by common descent, and that brute activity lends as much assistance to the understanding of human activity as does brute structure to the understanding of human structure. While the kinship of humans and brutes in bodily structure is generally recognized, their equally significant kinship in mentality as manifest in their activities is not."

Science News-Letter, February 26, 1927

MANUAL OF CULTIVATED TREES AND SHRUBS—Alfred Rehder—*Macmillan* ($10.50), A careful, exhaustive and scholarly systematic manual of all known woody cultivated plants. Not intended for popular use, but simply indispensable for botanists, horticulturists, and every one who undertakes to deal seriously with trees and shrubs.

Science News-Letter, February 26, 1927

THE INTERNAL CONSTITUTION OF STARS—A. S. Eddington—*Cambridge Univ.* (25 shillings). The last word on the subject by one of the men who know most about it.

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CATALOGUE OF OPTICAL AND GENERAL SCIENTIFIC INSTRUMENTS—*The Optical Convention* (6 shillings). A complete illustrated compendium of British made scientific instruments.

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PROCEEDINGS OF THE OPTICAL CONVENTION, 1926—*The Optical Convention* (£3 1s. 3d.). Two large volumes with numerous articles on optics and its relation to science and industry.

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THREE LECTURES ON ATOMIC PHYSICS—Arnold Sommerfeld — *Dutton* ($1). The latest developments of the quantum theory.

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Anniversaries of Science

March 3, 1845.—Sir John Franklin sailed with two ships, the *Erebus* and *Terror,* for the Arctic to find the Northwest Passage.

The agitation of the Royal Geographic Society for further exploration of the northern coast of America and search for the Northwest Passage, was successfully renewed when the return of James C. Ross from the Antarctic seas left two well-found ships, the *Erebus* and the *Terror,* available. Captain John Franklin, just returned from seven years of service as governor of Tasmania, was 59 years old, but as full of Arctic enthusiasm as ever. He would not apply for the duty, but when all turned to him as fitted by experience and capabilities for this dangerous service, he accepted unhesitatingly. He said: "No service is dearer to my heart than the completion of the survey of the northern coast of America and the accomplishment of the Northwest Passage."

—A. W. Greely: *A Handbook of Polar Discoveries.*

March 4, 1913.—The first Federal law protecting migratory birds was enacted.

The indirect economic importance of birds is enormous. Without them agriculture would be impossible, and all plant-life would be endangered by the rapid multiplication of insects and of small mammals. In this respect very many species of birds are to be classed as wholly beneficial, very many more as largely beneficial, and still others as at least neutral. . . . Even in the few cases where a bird seems at first sight to be largely or wholly injurious to human material interests, it may play a part in the scheme of things which cannot be eliminated without disastrous results. The balance of nature, as many lessons have shown, is not to be disturbed with impunity, whether it be by the reduction or extinction of birds on the one hand or by excessive preferential protection, or by the artificial introduction of inappropriate species into new areas, on the other.

—A. Landsborough Thomson: *Problems of Bird Migration.*

March 5, 1827.—Death of Alexander Volta, inventor of the voltaic battery.

In 1791 Galvani, professor of anatomy at Bologna, gave an account of his experiments on the contraction of frog's legs when touched with two different metals in series and, with much ability, supported the view that it was an electrical manifestation. He naturally supposed that the origin of the electrical disturbance was in the animal tissues. This was combated a year later by Volta, who referred the seat of the forces involved to the point of contact between the dissimilar metals, and gave good evidence that they were electrical. The effects, however, were very small, and interest flagged until 1800, when Volta invented the "pile," by means of which very appreciable results could be obtained. This at once excited much attention; and in the same year Nicholson and Carlisle in England in experimenting with the Voltaic pile observed the decomposition of water by electrolysis, and shortly afterwards Humphry Davy advanced the chemical theory of the pile, which, after many years of struggle, eventually superseded the contact theory of Volta. There was a rapid advance in the knowledge of the electric current, of batteries, and of the electrolytic process. These experiments produced a profound effect upon chemistry through the electrochemical theory of Berzelius; and although this has long been given up, the most modern theories have, in a different form, reverted to the view that chemical forces are of electrical origin.

—Bumstead: *Physics* in *The Development of the Sciences.*

March 7, 1927.—Alexander Graham Bell was issued the patent on the telephone. Alexander Graham Bell in an address before the Telephone Pioneers of America in 1911, said:

I feel it a little presumptuous on my part to try to speak of the telephone to telephone men. You have all gone so far beyond me. Why, the little telephone system that I look back upon, what is it compared to the mighty system that goes through the whole extent of our country today. It is to you that this great telephone development is due, and I feel that it behooves me to speak very modestly of the little beginning that led to this great end. I cannot tell you anything about the telephone. I cannot speak to you about undulating current, intermittent current, and pulsatory current. I belong to the past; you belong to the present.

On January 1, 1926, there were 16,720,224 telephones in the Bell system in the United States.

Science News-Letter, February 26, 1927

ENGINEERING

Smoke Dangers Manifold

Dangers to health and property from smoke in large cities are manifold and are inadequately handled by smoke ordinances, it was pointed out by H. B. Meller, chief of the Pittsburgh Bureau of Smoke Regulation at the recent meeting of the American Society of Mechanical Engineers.

Smoke irritates the sensitive membranes of eyes, nose, throat, lungs and the digestive tract, he said. It increases susceptibility to diseases affecting these parts of the body, diminishes the human working capacity and may hasten premature decay. It has a very important effect on the pneumonia death rate. Its effect on buildings is obvious. It is costly. Pittsburgh annually pays out millions of dollars for the privilege of being known as "the smoky city."

Smode ordinances are not uncommon at the present time but they are inadequate to cover the dangers from smoke, Mr. Meller said. Ordinarily they regulate only the dense type of smoke which is actually less injurious than the light and invisible smokes. In controlling dense smoke the ordinance controls only the tar deposit, which is but a small percentage of the products of combustion. The more dangerous products such as fine coke particles, ash, iron and sulphur oxides are emitted with light or invisible smokes and no attempt is made to regulate them.

Manufacturers and railroads are responsible for the greatest amount of the dense smoke emitted in the cities. They have cooperated with smoke ordinances satisfactorily. The thing now is to control the other types of smoke. The small heating plant is the real problem, it was pointed out, for it is scarcely ever regulated. Simple firing methods such as the use of coke would do much to better conditions.

Science News-Letter, February 26, 1927

CHEMISTRY

Tung Oil in Florida

That American tung oil, an urgent need of the national paint and varnish industry, will begin coming into the market before 1928 is the belief expressed by Henry A. Gardner of the Instituee of Paint and Varnish Research in a report to the American Chemical Society.

The project of developing an American tung oil industry was undertaken by the American paint and varnish industry some three years ago. Three hundred acres of land in the vicinity of Gainesville, Florida, were planted with tung trees to demonstrate to Florida farmers the possibilities of such a crop. Nurseries were established for distribution to other planters, and it was not long before one organization acquired a large amount of land near Gainesville and planted 1,200 acres of it in tung trees with seedlings from the nurseries. In this vicinity there are now about 300,000 tung trees, from one to two years old, some of which are bearing a substantial crop of seeds. The oil yield may range from 400 to 1,800 pounds per acre, Mr. Gardner says, beginning from the third to the ninth year. The average producing age of the trees has been estimated at from 25 to 30 years.

From these nurseries and from others established by the Florida Experiment Station, seedlings have been supplied to individuals in Alabama, Cuba, Florida, Georgia, Louisiana, Mississippi, South Carolina, Texas, the Philippine Islands, and Hawaii.

Science News-Letter, February 26, 1927

New York health department records show a falling off of about 5,000 cases of diphtheria a year since the children have been immunized against it.

The Problem of Translation—

¶Science, probing the unknown universe, writes its findings in cryptic language. A stellar galaxy shining faintly in the heavens hides its splendor and its immensity in numbers and formulæ; a minute germ has thrust upon it a long Latin name. With the aid of such scientific shorthand and such technicalities, science pushes on to new discoveries and new heights.

¶Yet the facts and the methods of science must penetrate and permeate the whole fabric of civilization if the world is to become an increasingly better place to live in. The man in the street, the child in the school, the merchant in the counting house, the judge on the bench, the priest in the temple, all of those who make the world, must know, appreciate, understand and cherish the spirit of research and the power of thought.

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